

PATENT

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M1596-242.PA2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : NISHIO et al.
Title : **COMPACT FLUORESCENT LAMP, SELF-BALLASTED FLOURESCENT LAMP AND LUMINARE**
Based On : US App. No. 09/242,220 (Filed under PCT §371)
International
File Date : June 6, 1998
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Serial No. : to be assigned
File Date : herewith
Examiner : unassigned
Art Unit : unassigned
Docket No. : M1596-242

CERTIFICATE OF EXPRESS MAIL

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M. Goldstein

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Hon. Assistant Commissioner for Patents
Washington, D.C. 20231

SECOND PRELIMINARY AMENDMENT

SIR:

Prior to examination on the merits, please amend the above identified patent application as follows:

CLEAN VERSION**IN THE CLAIMS:**

Kindly amend claim 11, as follows.

Kindly add new claim 26, as follows.

Kindly add new claim 27, as follows.

11. (Amended) A self-ballasted fluorescent lamp comprising:

an arc tube formed by parallelly arranging a plurality of U-shaped bent bulbs having an outer tube diameter ranging from about 8mm to about 11 mm in such a manner that the maximum width of the bulbs ranges from about 32mm to about 42mm, each of which has a bent portion and straight portions;

a cover including a base that is adapted to permit said arc tube to be attached thereto;

a lighting circuit which includes a circuit board having the maximum width ranging up to 1.2 times the maximum width of the arc tube, said maximum width of the arc tube being the dimension along which the U-shaped bent bulbs are arranged, and

said lighting circuit contained in the cover in such a manner that the circuit board is positioned with one of its sides facing all the ends of the straight portions of the arc tube and provided with components having relatively high heat resistance mounted on the side of the circuit board facing the arc tube and components having relative low heat resistance mounted on the opposite side of the circuit board.

26 (New) A self-ballasted fluorescent lamp, as in claim 11, wherein:

the U-shaped bent bulbs of the arc tube are arranged in such a manner that the cross sections of the U-shaped bent bulbs give the appearance of a triangle;

a distance w_1 between the two straight portions of each U-shaped bent bulb is so set as to be nearly identical to a distance w_2 between each straight portion of each U-shaped bent bulb that is adjacent to said straight portion;

said distances w1, w2 are respectively limited in the range from about 1mm to about 5mm;

said lighting circuit includes a half-bridge type inverter main circuit having at least a pair of transistors consisting of an -channel transistor and a P-channel transistor, which are connected in series with each other to an input power supply and serve as the main switching element for generating a high frequency voltage;

said lighting circuit further including a ballast choke connected to the main inverter main circuit so as to light the arc tube in stable conditions; and

said lighting circuit further including a control means which has a secondary winding magnetically connected to the ballast choke and shared by the -channel transistor and the P-channel transistor so that the control means serves to control the transistors by means of the secondary winding.

27. (New) A luminaire including a self-ballasted fluorescent lamp as claimed in claim 11

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Kindly amend claim 11, as follows.

Kindly add new claim 26, as follows.

Kindly add new claim 27, as follows.

11. (Amended) A self-ballasted fluorescent lamp [including] comprising:
an arc tube formed by parallelly arranging a plurality of U-shaped bent bulbs having
an outer tube diameter ranging from about 8mm to about 11mm in such a manner that the
maximum width of the bulbs ranges from about 32mm to about 42mm, each of which has
a bent portion and straight portions;
a cover including a base that is adapted to permit said arc tube to be attached
thereto; [and]
a lighting circuit which includes a circuit board having the maximum width ranging
up to 1.2 times the maximum width of the arc tube, said maximum width of the arc tube
being the dimension along which the U-shaped bent bulbs are arranged, and
said lighting circuit contained in the cover in such a manner that the circuit board
is positioned with one of its sides facing all the ends of the straight portions of the arc tube
and provided with components having relatively high heat resistance mounted on the side
of the circuit board facing the arc tube and components having relative low heat resistance
mounted on the opposite side of the circuit board.

26 (New) A self-ballasted fluorescent lamp, as in claim 11, wherein:
the U-shaped bent bulbs of the arc tube are arranged in such a manner that the cross
sections of the U-shaped bent bulbs give the appearance of a triangle;
a distance w1 between the two straight portions of each U-shaped bent bulb is so
set as to be nearly identical to a distance w2 between each straight portion of each U-shaped
bent bulb that is adjacent to said straight portion;
said distances w1, w2 are respectively limited in the range from about 1mm to
about 5mm;
said lighting circuit includes a half-bridge type inverter main circuit having at least
a pair of transistors consisting of an -channel transistor and a P-channel transistor, which
are connected in series with each other to an input power supply and serve as the main
switching element for generating a high frequency voltage;
said lighting circuit further including a ballast choke connected to the main inverter
main circuit so as to light the arc tube in stable conditions; and
said lighting circuit further including a control means which has a secondary
winding magnetically connected to the ballast choke and shared by the -channel transistor

and the P-channel transistor so that the control means serves to control the transistors by means of the secondary winding.

27. (New) A luminaire including a self-ballasted fluorescent lamp as claimed in claim 11

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